

Econ330 – Money and Banking

Solutions to Problem Set 4

Question 1

Most of the people would argue that having an independent Fed is good for the economy because

1. it prevents political business cycles – since political decision-makers have fixed terms and are subject to reelection, they have incentives to “manipulate” the economy before elections so that it looks like their term brought about economic growth, an increase in the welfare of individuals etc. An independent Fed would not take part in such a game and would (at least try to) prevent future downturns of the economy for the sole benefit of re-election of the current political leaders.
2. it can have longer-term objectives – an independent Fed means that its chairman’s term is not dependent on the term of the political leaders, which enables the Fed to pursue objectives beyond the term of governments (e.g., Alan Greenspan).
3. it avoids inflationary pressures due to budget deficits – when governments run budget deficits, the need to cheaply finance them creates incentive to “print money”, thus creating inflation. An independent Fed would anticipate that and cannot be forced to print money just to cover for budget deficits.

If, however, you were against independence, you would be part of a continuously shrinking group of people that argue that

1. an independent Fed is harder to make accountable for its mistakes and this creates moral hazard problems (it can try more risky ways to achieve its goals).
2. since fiscal policy is conducted by governments, while monetary policy by the Fed, the independence of the Fed causes problems in coordinating the two and thus can lead to major problems in the economy.

Question 2

When the person makes the deposit, both checkable deposits and reserves increase by the amount of the deposit. According to the simple money creation model, the final total change in deposits is determined by the required reserves ratio and the change in reserves (in our case, the change in reserves is equal to the initial deposit):

$$\Delta D = \frac{1}{r} \cdot \Delta R = \frac{1}{0.10} \cdot \$1,000 = \$10,000$$

Since money supply is equal to deposits plus currency, the final total change in money supply due to the new deposit is equal to the final total change in deposits: $\Delta M = \Delta D = \$10,000$.

In the more general model, the final change in money supply would be determined by the change in monetary base. Since the monetary base is equal to reserves plus currency, it increases by the amount of the deposit. Then,

$$\Delta M = \frac{1 + c}{r + e + c} \cdot \Delta MB = \frac{1 + 0.02}{0.10 + 0.05 + 0.02} \cdot \$1,000 = 6 \cdot \$1,000 = \$6,000.$$

Notice that the predicted effect in the more general model is smaller than in the simple model, because it takes into account the facts that people might want to hold some cash and that banks might want to keep excess reserves.

Question 3

All these changes affect the money supply by facilitating or reducing the effectiveness of the multiple deposit creation process: banks give out loans, some of these loans return to them as deposits, some of these deposits are given out as loans, and so on.

(i) When the currency ratio falls, it means that people are relatively more willing to make deposits with banks than to hold cash. This raises the sum of deposits and thus banks have more money to use for loans. Since larger sum are involved in the deposit creation process, money supply increases.

(ii) When banks expect large deposit outflows, they decide to hold more excess reserves in order to protect themselves from insolvencies. Doing so withholds these sums from the deposit creation process, thus reducing the money supply.

(iii) When interest rates increase, the opportunity cost of holding excess reserves increases

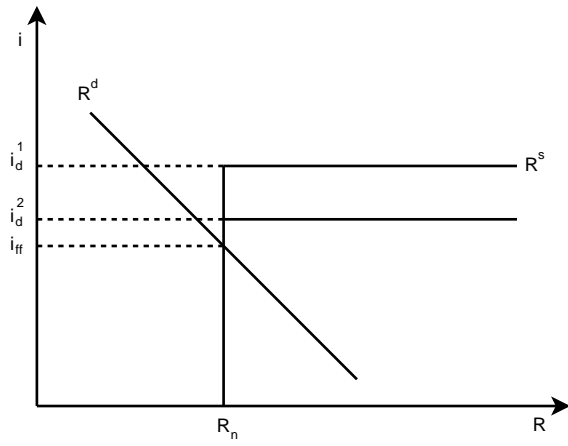
as well. Banks become less willing to hold on to their reserves and they raise loans. Having more money involved in the deposit creation process leads to an increase in money supply.

Question 4

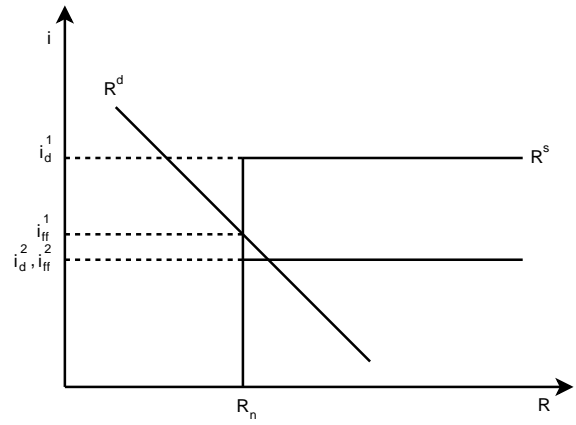
(i) The discount rate acts as an upper limit for the federal funds rate. Hence, when the Fed lowers its discount rate, there are two possible cases. First, as shown in figure 1(a), the new rate can still be higher than the market rate, and in that case the federal funds rate is unchanged. If, however, the new discount rate is lower than the market rate of the federal funds rate, the fed funds rate will follow the discount rate, as shown in figure 1(b). In this case, a lower the discount rate brought about a lower federal funds rate.

(ii) An increase in the required reserves ratio causes banks to need more reserves to cover for the required reserves. As a result, demand increases, i.e. it shifts to the right, which increases the federal funds rate as shown in figure 1(c).

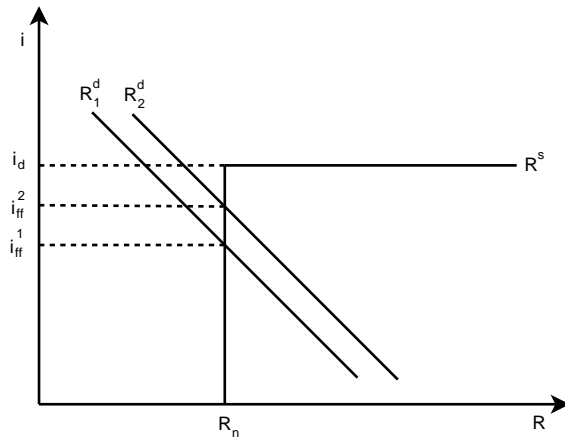
(iii) An open market sale allows the Fed to reduce the reserves of banks. As shown in figure 1(d), this causes a fall in the supply of reserves (a leftward shift), which leads to an increase in the federal funds rate.



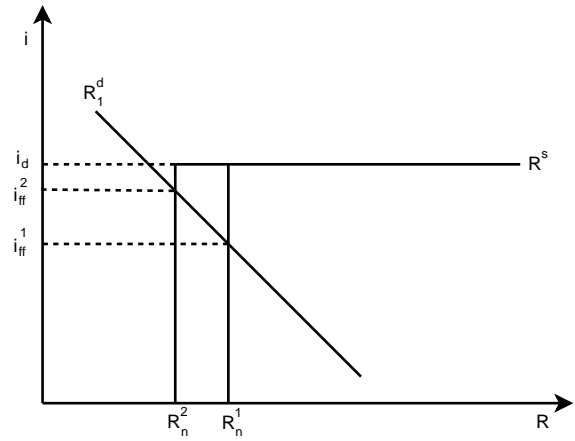
(a) Fall in discount rate - case 1



(b) Fall in discount rate - case 2



(c) Higher reserve requirements



(d) Open market sale

Figure 1: The effect of Fed actions on the federal funds rate.